CLAIMS

What is claimed is:

1. A vibration isolation system for an engine-driven vibratory screed, including a blade, a vibratory exciter mechanism including the engine attached to the blade, and an operating handle frame connected to the exciter mechanism, the improvement comprising:

a bifurcated frame member having a pair of arms positioned to straddle the exciter mechanism for attachment on laterally opposite sides thereof;

an elastomeric vibration isolator captured between each arm and a surface of the exciter mechanism, said isolator confined to limit vertical compressive movement and to permit substantially greater horizontal shear movement; and

a retainer attached to one of the arms and the exciter, said retainer adapted to engage the isolator to limit the amplitude of horizontal shear movement.

2. The apparatus as set forth in claim 1 wherein each arm includes an upper attachment surface;

the opposite sides of the exciter mechanism are provided with mounting surfaces disposed generally parallel to the upper attachment surfaces of said arms; and,

said isolators are confined between said attachment surfaces and said mounting surfaces.

3. The apparatus as set forth in claim 1 wherein said isolators include rigid upper and lower end plates having threaded connectors attached thereto; and,

said attachment surfaces and said mounting surfaces are adapted to receive threaded fasteners for attachment to said threaded connectors.

4. The apparatus as set forth in claim 3 wherein each of said attachment surfaces is formed integrally with said retainer.

5. The apparatus as set forth in claim 4 wherein each of said retainers comprises a downwardly opening cup having an upper base surface forming said

attachment surface and a downwardly divergent side wall positioned to engage the isolator to provide said amplitude limit.

6. The apparatus as set forth in claim 1 wherein said retainer includes a downwardly opening cup having a downwardly divergent side wall positioned to engage the isolator to provide said amplitude limit.

7. The apparatus as set forth in claim 6 wherein each of said isolators comprises a cylindrical body with flat axially opposite ends, said flat ends providing surfaces for capture of the isolator; and,

said cup wall having a frustoconical shape that is coaxial with the cylindrical axis of the isolator in a non-horizontal-load rest position, said cup wall positioned to engage the isolator under a horizontal shear load to provide said amplitude limit.

8. The apparatus as set forth in claim 7 wherein said retainer cup includes an upper attachment surface for one of the isolator ends, and wherein the laterally opposite sides of said exciter include mounting surfaces for the other of the isolator ends.

9. The apparatus as set forth in claim 1 wherein said elastomeric isolator comprises a natural rubber material.

10. The apparatus as set forth in claim 9 wherein said rubber material has a durometer of about 30.

11. The apparatus as set forth in claim 1 including an elastomeric support isolator attached at one end to the frame member between said arms and at an opposite end to the surface of the exciter mechanism.

12. The apparatus as set forth in claim 11 wherein the exciter mechanism includes an exciter housing positioned between the arms of the frame member and having an upwardly extending exciter drive shaft;

the engine is positioned directly above the exciter housing and includes a downwardly extending output shaft connected to the exciter drive shaft; and,

an engine output shaft housing connected to the exciter housing with a flexible connection.

13. The apparatus as set forth in claim 12 wherein the flexible connection comprises an elastomer coupling.

14. The apparatus as set forth in claim 13 wherein said flexible connection further comprises a plurality of elastomer shock absorbers surrounding said elastomer coupling.

15. A vibration isolation system for an engine-driven vibratory screed, including a blade, a vibratory exciter mechanism attached to the blade, and an operating handle frame connected to the exciter mechanism, the improvement comprising:

a frame member having end portions adapted for operative attachment to laterally opposite sides thereof of the exciter mechanism;

an elastomeric vibration isolator captured between each end portion and a surface of the exciter mechanism, said isolator mounted to permit a given amount of horizontal shear movement;

a retainer attached to one of the arms and the exciter mechanism, said retainer adapted to engage the isolator to limit the amplitude of horizontal shear movement; and,

an engine operative connected to and supported on the exciter mechanism.

16. The apparatus as set froth in claim 15 including an elastomeric support isolator attached at one end to the frame member between the end portions and at an opposite end to the surface of the exciter mechanism.

17. The apparatus as set forth in claim 16 wherein the exciter mechanism includes an exciter housing positioned between the end portions of the frame member and having an upwardly extending exciter drive shaft;

the engine is positioned directly above the exciter housing and includes a downwardly extending output shaft connected to the exciter drive shaft; and,

an engine output shaft housing connected to the exciter housing with a flexible connection.

18. The apparatus as set forth in claim 17 wherein the flexible connection comprises an elastomer coupling.

19. The apparatus as set forth in claim 18 wherein said flexible connection further comprises a plurality of elastomer shock absorbers surrounding said elastomer coupling.

20. The apparatus as set forth in claim 15 wherein said isolators are confined to limit vertical compressive movement and to permit substantially greater horizontal shear movement.